## FLUOR

FH-0202988

Ms. J. H. Kessner, Program Manager **Analytical Services** Bechtel Hanford 3350 George Washington Way H0-25 Richland, Washington 99352

Dear Ms. Kessner:

FINAL RESULTS FOR THE 233S LIQUID SAMPLES FROM PROCESS PIPES - SDG S0035 AND S0036

References: (1) HNF-SD-CD-QAPP-016, Rev. 6, "222-S Laboratory Quality Assurance Plan," dated April 1, 2002.

> (2) Letter, W. H. Price, BHI, to S. C. Hopperstad, FH, "Letter of Instruction for Analysis of Bechtel Hanford, Inc. Samples at the Fluor Hanford 222-S Laboratory - FY-2002", 095774, dated January 16, 2002.

This letter and attachments present the final results for liquid samples from process pipes received at the 222-S Laboratory from the 233S Plutonium Concentration Facility Process areas on May 14 and 16, 2002. The samples were analyzed for gross alpha/beta and GEA, as indicated in the special instructions on the attached copy of the chain of custody and Request for Sample Analysis forms, in accordance with the Letter of Instruction for Analysis of Bechtel Hanford, Inc. Samples at the Fluor Hanford 222-S Laboratory – FY-2002 referenced above.

If you have any questions regarding this report, please feel free to call me at 373-4314.

Sincerely,

Ruth A Bushaw, Project Coordinator Analytical Project Management

Ruth a Bushar

Production Control

RAB:lds

Attachments (5)

**EDMC** 

## CORRESPONDENCE DISTRIBUTION COVERSHEET

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101

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Correspondence No.

R. A. Bushaw, FH

J. H. Kessner, BHI

FH-0202988

H0-25

FINAL RESULTS FOR THE 233S LIQUID SAMPLES FROM PROCESS PIPES—

Subject: SDG S0035 AND S0036

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ATTACHMENT I

**NARRATIVE** 

Consisting of 3 pages, Including cover page

# FINAL RESULTS FOR THE 233S LIQUID SAMPLES FROM PROCESS PIPES – SDG S0035 and S0036

Two liquid samples from process pipes (B14MB5, SDG S0035 and B14MK9, SDG S0036) from the 233S Plutonium Concentration Facility were received at the 222-S Laboratory on May 14 and 16, 2002. The samples were analyzed for gross alpha/beta and GEA, as indicated in the special instructions on the attached copy of the chain of custody (COC) and Request for Sample Analysis (RSA) forms, in accordance with the Letter of Instruction for Analysis of Bechtel Hanford, Inc. Samples at the Fluor Hanford 222-S Laboratory – FY 2002 (LOI), referenced in the cover letter.

A Data Summary Report is included as Attachment 2. The correlation between the customer sample identification number and laboratory identification numbers is presented in the sample breakdown diagram included as Attachment 3. Copies of the chain of custody and Request for Sample Analysis forms are included as Attachment 4.

The chain of custody form listed specific analytes to report by gamma energy analysis (GEA). Additional analytes were observed with activities above the detection limit. These are provided in a Labcore Extraneous Peak Report presented in Attachment 5.

The chain of custody form for sample B14MB5 listed additional analyses besides those mentioned above. However, instructions on the RSA were for the Laboratory to perform only the GEA and gross alpha/beta analyses and additional analyses may be requested. No additional analyses were requested.

#### Sample Appearance and Handling

B14MB5 (S02M000083) – This sample consisted of approximately 30 mL of clear liquid with a slight gray tint. No solids were observed.

B14MK9 (S02M000084) – This sample consisted of approximately 30 mL of slightly cloudy, rust/brown colored liquid. No solids were observed.

## **Analytical Results**

## **Quality Control Results**

### **Laboratory Control Standards**

All laboratory control standard (LCS) recoveries were acceptable in accordance with the 222-S Laboratory Quality Assurance Plan (QAPP-016), referenced in the cover letter.

#### Method Blanks

A low level of cesium-137 (<sup>137</sup>Cs) contamination was detected in the method blank analyzed with sample B14MB5 (S02M000083). Since the sample results were reported as less than the detection limit, the contamination was believed to be associated only with the blank and no reanalysis was requested.

#### Practical Quantitation Limits (PQL)

The Laboratory was able to meet all of the requested PQLs, except for gross (total) beta for sample B14MB5. However, since beta was detected in the sample at more than 1000 times the reported detection limit, no reanalysis was requested.

#### **Analytical Procedures**

Table 1 presents the 222-S Laboratory analytical procedures used to generate the reported results.

**Table 1. Analytical Procedures** 

Apalysis	Preparation Procedure	The Manager of the Control of the Co
	Radionuclide Analyses	
AT/TB	Direct	LA-508-101 Rev. H-0
GEA	Direct	LA-548-121 Rev. F-3

**Abbreviations** 

AT/TB - total alpha/total beta

GEA – gamma energy analysis

## ATTACHMENT 2

## DATA SUMMARY REPORT

Consisting of 3 pages, Including cover page

## Attachment 2. Data Summary Report 233S SDG13

CUSTOMER SDG #: S0035 CUSTOMER SAMPLE ID: B14MB5

SAMPLE PORTION: Parent

	Т						i					
Sample# F	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S02M000083		Cobalt-60 by GEA	uCi/mL	110	<2.46e-05	<8.79e-05	n/a	n/a	n/a	n/a	8.8e-05	n/a
S02M000083		Cesium-137 by GEA	uCi/mL	109	6.36e-05	<1.13e-04	n/a	n/a	n/a	n/a	1.1e-04	n/a
S02M000083		Europium-152 by GEA	uCi/mL	n/a	<5.77e-05	<3.01e-04	n/a	n/a	n/a	n/a	3.0e-04	n/a
S02M000083		Europium-154 by GEA	uCi/mL	n/a	<8.56e-05	<2.70e-04	n/a	n/a	n/a	n/a	2.7e-04	n/a
S02M000083		Europium-155 by GEA	uCi/mL	n/a	<4.42e-05	<7.39e-04	n/a	n/a	n/a	n/a	7.4e-04	n/a
S02M000083		Radium-226 by GEA	uCi/mL	n/a	<5.60e-04	<2.44e-03	n/a	n/a	n/a	n/a	2.4e-03	n/a
S02M000083		Americium-241 by GEA	uCi/mL	n/a	<3.95e-05	7.60	n/a	n/a	n/a	n/a	n/a	0.090
S02M000083		Alpha in Liquid Samples	uCi/mL	100	<7.20e-04	22.5	n/a	n/a	n/a	n/a	1.1e-03	0.46
S02M000083	T	Beta in Liquid Samples	uCi/mL	107	<2.66e-03	2.42	n/a	n/a	n/a	n/a	4.8e-03	1.1

## Attachment 2. Data Summary Report 233S SDG13

CUSTOMER SDG #: S0036 CUSTOMER SAMPLE ID: B14MK9

SAMPLE PORTION: Parent

DRITUN: Parent											
Sample# R	A# Analyte	Unit	Standard %	Blank	Resul t	Duplicate	Average	RPD %	Spk Rec %		Count Err%
S02M000084	Cobalt-60 by GEA	uCi/mL	101	<2.14e-05	<2.22e-05	n/a	n/a	n/a	n/a	2.2e-05	n/a
S02M000084	Cesium-137 by GEA	uCi/mL	99.4	<4.29e-05	6.89e-05	n/a	n/a	n/a	n/a	n/a	47
S02M000084	Europium-152 by GEA	uCi/mL	n/a	<3.87e-05	<9.15e-05	n/a	n/a	n/a	n/a	9.2e-05	n/a
S02M000084	Europium-154 by GEA	uCi/mL	n/a	<5.24e-05	<5.02e-05	n/a	n/a	n/a	n/a	5.0e-05	n/a
S02M000084	Europium-155 by GEA	uCi/mL	n/a	<4.68e-05	<2.24e-04	n/a	n/a	n/a	n/a		
S02M000084	Radium-226 by GEA	uCi/mL	n/a				n/a	n/a	n/a	4.7e-04	
S02M000084	Americium-241 by GEA	uCi/mL	n/a	<1.12e-04	6.20	n/a	n/a	n/a	n/a	n/a	
S02M000084	Alpha in Liquid Samples	uCî/mL	96.1	<4.98e-04	21.8	n/a	n/a	n/a	n/a		
S02M000084	Beta in Liquid Samples	uCi/mL	105	<1.13e-03	1.64	n/a	n/a	n/a	n/a	2.4e-03	0.95

## **ATTACHMENT 3**

## SAMPLE BREAKDOWN DIAGRAM

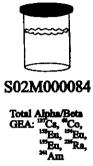
Consisting of 3 pages, Including cover page

# 233-S Pu Concentration Facility Samples

SDG S0035 Liquid from Process Pipe B14MB5



# 233-S Pu Concentration Facility Samples SDG S0036 Liquid from Process Pipe B14MK9



## **ATTACHMENT 4**

# CHAIN OF CUSTODY AND REQUEST FOR SAMPLE ANALYSIS FORMS

Consisting of 5 pages, Including cover page

Dave Encke 373-3461  Project Designation 233-S Plutonium Concentration Facility Process Areas - Other  Sampling Location Z 3 3 - S  Sampling Location Z 3 3 - S  Solve Encke 373-3461  SAF No. B99-025  Air Quality   Field Logbook No. COA R233SP2800  Method of Shipment Hand Carry	Bechtel 1	Hanford Inc.	C	HAIN OF CUST	ODY/S	AME	LE A	ANALY	YSIS	RI	EQUEST	`	B99-025-0		-025-09	Page 1	of <u>1</u>
Sampling Location   Concentration Facility Process Area - Other	Collector	TNICKE										utor	Pri	ce Code	9L	Data Tur	naround
R233SP260   Had Carry	Project Designation	-	Sampli		3->								Air	Quality		60 1	Days
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Preservation Nos Type of Containers and Type	Shipped To 222-S Lab Operation	ns										Air, Bill N	Vo.				
Special Handling and/or Storage  Type of Container(s)  No. of Container(s)  Volume  South  So	1			Preservation	None				:	•							
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SAMPLE ANALYSIS  Sample No. Matrix * Sample Date Sample Time  Sample No. Matrix * Sample Date Sample Time  Sign/Print Names  CHAIN OF POSSESSION  Sign/Print Names  CHAIN OF POSSESSION  Sign/Print Names  Relinquished by/Removed From Date/Time /01-00  Section of the Chair of the	Special Handing			No. of Container(s)		ļ							_				
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FINAL SAMPLE Disposal M DISPOSITION	Icthod			· · · · · · · · · · · · · · · · · · ·				Dispos	ed By					D	ntc/Time	

REQUEST FOR SAMPLE ANALYSIS (RSA) 1. Sample Origin 2. Date Sampled 4. Requestor's Name 6. CACN/COA 7. Cost Center 233-5 Facility 15. J. Trent 5. Requestor's Phone/MSIN/FAX, 415-4149 Customer/Project Gode 9. Laboratory 10. Volume 11. Matrix 8. Customer ID No. 12. Requested Analyses 13. Expected Range of Sample of Sample 5RO. 606 5660000 14. Does sample have a MSDS? Yes HEHF assigned MSDS No. \_\_\_\_\_ No Description of process that produced waste/sample: Liquid from process piping Will radiochemistry results be used for unconditional release? Yes 15. is this sample RCRA listed? Yes No Applicable Listed Waste Codes: Applicable Characteristic Codes: D001: (how determined) \_\_\_\_\_ Ignitable Yes No P Codes: (list) Yes No Yes No D002: (how determined) \_\_\_\_\_ Corrosive Yes No U Codes: (list) D003: (how determined) \_\_\_\_\_ Reactive Yes No Yes No K Codes: (list) \_ Yes No F Codes; (list) \_ Yes No Toxic: (list codes) \_ PCB: Does this waste/sample contain PCBs? Yes Over 500 ppm If YES, what is the source of the PCBs? Yes Over 50 ppm Transformer, capacitor, or ballast Yes PCBs are suspected Other, specify \_ No PCBs are suspected ■ Unknown 16. Sample Disposition Sample(s) Dose Rate at Contact Return to Customer Samples found to contain PCBs will be returned to the customer Dispose of per facility procedures with applied charges for analyses and disposal 17. QC Required Per 222-S Laboratory Quality Assurance Plan (HNF-SD-CP-QAPP-016)

Control of the first production for Fy 2002 222-5

(Control of the first production for Fy 2002 222-5) 18. Special Instructions (Special Storage Requirements, Reporting format, holding times, etc.) 19. Requested Turnaround Time Laboratory is to perform GEA and point of this grass alpha/boto analysis and report by this T days. Additional analyses may be reported. 2 Weeks 4 Weeks 7 Clay 12 Col 5017 21. Chain of Custody O No Yes Number:

	REQUEST F	OR SAM	IPLE ANA	LYSIS (RSA)	)		Group ID No. (For lab use only)					
1. Sample Origin 233-5 Fac	lity (BHI)	2. 5	Date Sampled	4. Requestor's N 5. J. Tre	ame ent	-	6. CACN/COA					
Customer/Project God	ië		Submitted By	ale		5. Requ 37 2-	estor's Phone/MS	IN/FAX 425-489- 25/ 969-				
8. Customer ID No.	9 Laboratory Sample No	10. Volume of Sample	11. Matrix of Sample	1	2. Reque	sted Analyse:	5	13. Expected Range				
B14M K9		60mL	liquid	see CO	۷			1.56 grams Pu				
· · · · · · · · · · · · · · · · · · ·												
14. Does sample hav	A MSDS2											
Will radiochemist	_	· · · · · · · · · · · · · · · · · · ·		Yes &No								
○ Yes ○ ○ Yes ○	Waste Codes:  No P Codes: (list) _  No U Codes: (list) _  No K Codes: (list) _  No F Codes: (list) _				O No O No	D001: (how D002: (how D003: (how		Ignitable Corrosive Reactive				
Yes Ove	vaste/sample contain Poor 500 ppm or 50 ppm or 50 ppm os are suspected os are suspected	If YES		urce of the PCBs? acitor, or ballast								
· = ·				•	Sample(s)	Dose Rate a	1					
	Per 222-S Laborator Other (list reference ris (Special Storage Re	document or	attach) <u>Lad</u>	boratory A	halyi	rical 5	FY 2002 upport					
Laborato and Gross	ry is to personal and Additions	ertorn alyses	and r	and cros report w	5 21/01 17/41	n		4 Weeks				
20. Sample Received			9/16/62 Date	/	030		Chain of Custody	es 4-U15-010				

## ATTACHMENT 5

## LABCORE EXTRANEOUS PEAK REPORT

Consisting of 2 pages Including cover page

## **LABCORE Extraneous Peak Report**

Bechtel

Report w12ea/rev. 2 p 1 26-jun-2002 07:53:37

Seq#	Туре	Sample #	Client ID	Extraneous Peak Name	Matrix	Result	MDL	Units	RQ
Sample	e Group#:	2002018	34				·		
16-61-963 (1895) 17-41-93-04-853	och de let (seid) Acher An (seid)	S02M000083	2335 SDG13 (B14MB5) Parent	NP-237	LIQUID	4.614e-2	0.000	uCi/mL	
14-00-400055650M	duoungeneeree 100-011 s	S02M000083	233S SDG13 (B14MB5) Parent	NP-237 Count Error	LIQUID	3.300	0.000	%	on the first property
		S02M000083	233S SDG13 (B14MB5) Parent	PA-233	LIQUID	2.681e-2	0.000	uCi/mL	
i prin socije brows	tuu tuoodt nee-16000000	S02M000083	233S SDG13 (B14MB5) Parent	PA-233 Count Error	LIQUID	5.270	0.000	%	e ne nivî Mîndînya
		S02M000083	233S SDG13 (B14MB5) Parent	PU-239	LIQUID	9.598	0.000	uCì/mL	
265.60003084664	Regard Additionation	S02M000083	233S SDG13 (B14MB5) Parent	PU-239 Count Error	LIQUID	13.590	0.000	%	anna a a minini negara
Sample	e Group#:	2002018	88						
-	_	S02M000084	233S SDG13 (B14MK9) Parent	NP-237	LIQUID	1.134e-3	0.000	uCi/mL	
		S02M000084	233\$ SDG13 (B14MK9) Parent	NP-237 Count Error	LIQUID	40.960	0.000	%	
44441141141	1001100-411400-0-000	S02M000084	233S SDG13 (B14MK9) Parent	PA-233	LIQUID	7.038e-4	0.000	uCi/mL	
		S02M000084	2335 SDG13 (B14MK9) Parent	PA-233 Count Error	LIQUID	28,840	0.000	%	
1000 N 44 0000	e nechebbleed a balan	S02M000084	233\$ SDG13 (B14MK9) Parent	PU-239	LIQUID	13.28	0.000	uCi/mL	automorphism (1966-1967)
1040x 2843394 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		S02MG00084	233S SDG13 (814MK9) Parent	PU-239 Count Error	LIQUID	3.280	0.000	%	
enedurigues se s	2000100010010 00101X	S02M000084	233S SDG13 (B14MK9) Parent	U-237	LIQUID	1.607e-3	0.000	uCi/mL	436 C 1006 C 2000 P
(Classical)		S02M000084	233S SDG13 (B14MK9) Parent	U-237 Count Error	LIQUID	13.490	0.000	%	

RQ=Result Qualifier
MDL=Minimum Detection Limit